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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/016,300	12/12/2001	Gwo-Chuan Tzu	6198/TCG/WCVD/BG	7467

7590 06/20/2003

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EXAMINER	
ZERVIGON, RUDY	
ART UNIT	PAPER NUMBER
1763	6

DATE MAILED: 06/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/016,300	TZU ET AL.	
	Examiner	Art Unit	
	Rudy Zervigon	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-51* is/are rejected.

7)☒ Claim(s) *37 and 48* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 December 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2,3,5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "mixer" must be shown or the feature canceled from the claims. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "first and second opposed surfaces" must be shown or the features canceled from the claims. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "fitting" must be shown or the feature canceled from the claim. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign not mentioned in the description: "26", Figure 3. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-51 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 12-19 of copending Application No. 09/798,258 in view of Tomita et al (USPat. 5,423,936). Independent claims 1, 8, 25, 42, and 48 of Application No. 10/016,300 do not claim both temperature and pressure control. Claim 12 of Application No. 09/798,258 claims a temperature and pressure control system. Tomita further teaches a temperature control system (41, 62/63; Figure 1; column 3, lines 51-61) in thermal communication with the processing chamber (1, Figure 1); and a pressure control system (70, 82, 84; Figure 1; column 4, lines 61-68) in fluid communication with the processing chamber (1, Figure 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the temperature and pressure control of Application No. 09/798,258 and Tomita as part of the apparatus of Application No. 10/016,300.

Motivation to add the temperature and pressure control of Application No. 09/798,258 and Tomita as part of the apparatus of Application No. 10/016,300 is to optimize the pressure and temperature of the apparatus of Application No. 10/016,300.

Further, it would be obvious to those of ordinary skill in the art to optimize the operation of the claimed invention (In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980); In re Hoeschele , 406 F.2d 1403, 160 USPQ 809 (CCPA 1969); Merck & Co. Inc . v. Biocraft Laboratories Inc. , 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied , 493 U.S. 975 (1989); In re Kulling , 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990), MPEP 2144.05).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

7. Claims 1-51 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-22 of copending Application No. 09/798,251. Although the conflicting claims are not identical, they are not patentably distinct from each other because Application No. 09/798,251 claims "...a baffle plate mounted to said second surface, said baffle plate including first and second opposed sides..", while the claims of the present application claim, for example, "...a mixer coupled to the second surface of the lid, the mixer having a central passage in communication with the flow channels".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the mixer of the present application with the baffle plate of Application No. 09/798,251.

Motivation to replace the mixer of the present application with the baffle plate of Application No. 09/798,251 is to provide alternate and equivalent means for distributing process gasses.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Objections

8. Claim 37 is objected to because of the following informalities: Claim 37 states "wherein the wherein the". Appropriate correction is required.

9. Claim 48 is objected to because of the following informalities: Claim 48 states "first and second opposed surface". Appropriate correction is required.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 1 requires a "mixer". The

specification does not provide a description in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

12. Claims 1-51 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant claims first and second "opposed surfaces" or "opposed surface" in claim 48.

13. Claim 44 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant's "fitting" is not taught in the specification in a manner to positionally fix the location of the "reservoir" relative to the valve. Is the fitting on the lid upstream or downstream of the valve? If the fitting on the lid is upstream of the valve, then the sequence, in the direction of the gas would be – fitting, reservoir, valve as required by the claim. If the fitting on the lid is downstream of the valve, then the sequence, in the direction of the gas would be – valve, reservoir, fitting as required by the claim.

14. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

15. Claims 1-51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

16. Claims 1-51 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: Applicant's "first and second opposed surfaces" of the lid are not correlated, structurally, to the lid. Where, on Applicant's lid, are the "first and second opposed surfaces" of the many disclosed?

17. Claim 44 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: See above.

18. Claims 11, 36, and 50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear if claims 11, 36, and 50 end with the first period or with the second period, after "11.", "36.", and "50." respectively. The following action assumes that claim 11, 36, 50 each end with the first period, while the claim text beyond the first period, "surface.", will not be addressed as it appears to be a portion of another claim(s) that was(were) not numbered.

Claim Rejections - 35 USC § 102

19. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

20. Claim 42, 43, and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Conger et al (USPat. 4,761,269). Conger teaches:

i. A lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) for a semiconductor processing system (column 1, lines 10-15) having an internal volume, said lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) comprising: a lid having first (22a,b/16 interface) and second (outer annular surface) opposed surfaces, the first (22a,b/16 interface) and second opposed surfaces having a plurality of inlet channels (72, 74, originating conduit for 88) disposed therethrough; a valve (22a,b; 78/77; Figure 2); a body having a lower surface (inner radius lowest surface of 16) coupled to the first surface (22a,b/16 interface) of the lid; at least one gas channel (channel forming 82, 80, 76, 88) extending through the body from the lower surface (inner radius lowest surface of 16) and branching into a first gas channel (any one of 72; Figure 2) and a second gas channel (74/80; Figure 2); and a third channel (82; Figure 2) disposed through the body and fluidly coupled by the valve (22a,b; 78/77; Figure 2) to the second channel (74/80; Figure 2), as claimed my claim 42

ii. the lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) of claim 42, wherein the valve (22a,b; 78/77; Figure 2) is mounted to the body, as claimed in claim 43

iii. a reservoir (56; Figure 1) fluidly coupled before the valve (22a,b; 78/77; Figure 2) and a fitting (see mechanical fitting for 22a/b fixing valves 22a/b to lid 16) disposed on the lid, as claimed in claim 44

iv. Conger's apparatus is capable of providing a cleaning source of gas, in lue of the material gas (56; Figure 1), as claimed in claim 45 - Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

22. Claim 44 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Conger et al (USPat. 4,761,269). Conger is discussed above. Conger does not teach that his reservoir (56; Figure 1) is fluidly coupled between his valve (22a,b; 78/77; Figure 2) and a fitting (see mechanical fitting for 22a/b fixing valves 22a/b to lid 16) disposed on the lid if the fitting is considered to share a common surface with the lid (see above), as claimed in claim 44.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to relocate Conger's reservoir such that it is fluidly coupled between his valve (22a,b; 78/77; Figure 2) and a fitting (see mechanical fitting for 22a/b fixing valves 22a/b to lid 16) disposed on the lid.

Motivation to relocate Conger's reservoir such that it is fluidly coupled between his valve and a fitting disposed on the lid is to reduce material costs of manufacture due to a reduction in piping length.

23. Claims 1-8, 12-33, 37-41, 46, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conger et al (USPat. 4,761,269) in view of Hao et al (USPat. 6,123,775). Conger teaches:

i. A lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) for a semiconductor processing system (column 1, lines 10-15), said lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) comprising: a lid having first (22a,b/16 interface) and second opposed surfaces a plurality of controllable flow channels (72, 74, 88, 80, 86, 79, 82; Figure 2) extending from the first (22a,b/16 interface) and second opposed surfaces ; a gas control system (22a,b; Figure 2; column 5, lines 54-65) disposed on the first surface and operably opening and closing the channels, as claimed in claim 1

ii. The lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) of claim 1, wherein the gas control system (22a,b; Figure 2; column 5, lines 54-65) further comprises: a gas manifold (structure for conduits of valves 22a,b; Figure 2) disposed on the lid; and at least one valve (any off 22a,b; Figure 2) coupled to the gas manifold (structure for conduits of valves 22a,b; Figure 2) adapted to control a flow through one of the flow channels (72, 74, 88, 80, 86, 79, 82; Figure 2), as claimed in claim 2

iii. The lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) of claim 1, wherein the gas control system (22a,b; Figure 2; column 5, lines 54-65) further comprises: a gas manifold (structure for conduits of valves 22a,b; Figure 2) disposed on the lid; at least one valve (any off 22a,b; Figure 2) coupled to the gas manifold (structure for conduits of valves 22a,b; Figure 2) adapted to control a flow through one of the flow channels (72, 74, 88, 80, 86, 79, 82; Figure 2); and a reservoir (56; Figure 1) coupled to the valve, as claimed in claim 3

iv. The lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) of claim 1, wherein the gas control system (22a,b; Figure 2; column 5, lines 54-65) further comprises: a gas manifold (structure for conduits of valves 22a,b; Figure 2) having an upper surface (22a,b/16 interface) and lower surface (80); a first channel (any one of 72; Figure 2), a second channel (74/80; Figure 2) and a third channel (82; Figure 2) each extending through the gas manifold (structure for conduits of valves 22a,b; Figure 2) and exiting the lower surface (near 79; Figure 2); and a fourth channel (88; Figure 2) extending from the upper surface and coupling to the third channel (82; Figure 2), as claimed in claim 4

v. The lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) of claim 4, wherein the gas control system (22a,b; Figure 2; column 5, lines 54-65) is capable of providing a cleaning source of gas, in lue of the material gas (56; Figure 1), and fluidly coupled to the fourth channel (88; Figure 2), as claimed in claims 5, 29, 30, - Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

vi. A lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) for a semiconductor processing system (column 1, lines 10-15), said lid

assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) comprising: a lid having first (22a,b/16 interface) and second opposed surfaces, the first (22a,b/16 interface) and second opposed surfaces having a first inlet channel (any one of 72; Figure 2), a second inlet channel (any one of 74; Figure 2) and a third inlet channel (any other one of 74 or 72; Figure 2) disposed therethrough; a gas manifold (structure for conduits of valves 22a,b; Figure 2) coupled to the first surface of the lid, the gas manifold (structure for conduits of valves 22a,b; Figure 2) comprising: a body (16; Figure 2) having an upper surface and lower surface; a first channel (any one of 72; Figure 2), a second channel (74/80; Figure 2) and a third channel (82; Figure 2) each extending through the gas manifold (structure for conduits of valves 22a,b; Figure 2) to the lower surface, as claimed in claim 8

vii. the lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) of claim 8, wherein the gas manifold (structure for conduits of valves 22a,b; Figure 2) further comprises a fourth channel (88; Figure 2) coupled between the upper surface and the third channel (82; Figure 2), as claimed in claim 20

viii. the lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) of claim 20 further comprising: a gas source (56; Figure 1) fluidly coupled to the fourth channel (88; Figure 2), as claimed in claim 21 - Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish

the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02). Thus, that Conger's gas source (56) is not a cleaning gas source does not structurally distinguish Applicant's apparatus from that of Conger's with respect to claim 21

ix. the lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) of claim 8 further comprising: a valve (78/77; Figure 2) coupled to the gas manifold (structure for conduits of valves 22a,b; Figure 2); and a gas reservoir (56; Figure 1) fluidly coupled proximate the valve (78/77; Figure 2), as claimed in claim 22

x. the lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) of claim 22 further comprising: a thermal conditioning channel (88, Figure 2 of Conger, Applicant's specification [00030]) disposed in the gas manifold (structure for conduits of valves 22a,b; Figure 2) , as claimed in claim 23. Applicant's specification [00030] – " FIGS. 3 and 4 are partial sectional views of the vacuum lid assembly 20. The gas manifold 34 includes a body defining three valve mounting surfaces 59, 61, 64 (mounting surface 64 is shown in FIG. 4) and an upper surface 63 for mounting an upper valve 65. The gas manifold 34 includes three pairs of gas channels 67a, 67b, 69a, 69b, 71a, 71b (71a and 71b are shown on FIG. 4) that fluidly couple the two process gases and a purge gas (shown as fluid sources 68a-c in FIG. 9) to the interior of the processing chamber 16 controllably through the valves 32a, 32b, 32c, thereby allowing thermal conditioning of the gases by the gas manifold 34 before reaching the valves 32a, 32b, 32c."

xi. a lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) for a semiconductor processing system (column 1, lines 10-15), said lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) comprising: a lid having first (22a,b/16 interface) and second opposed surfaces, the first (22a,b/16 interface) and second opposed surfaces having a plurality of inlet channels (72, 74; Figure 2) disposed therethrough; a valve (78/77; Figure 2); a gas manifold (structure for conduits of valves 22a,b; Figure 2) coupled to the first surface of the lid, the gas manifold (structure for conduits of valves 22a,b; Figure 2) comprising: a gas manifold body (top portion of 16) having an upper surface (16/22a,b interface) and lower surface (inner radius lowest surface of 16); a plurality of gas channels (72, 74, 88, 80, 86, 79, 82; Figure 2) extending through the gas manifold (structure for conduits of valves 22a,b; Figure 2) to the lower surface (inner radius lowest surface of 16), as claimed in claim 25

xii. the lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) of claim 25 further comprising a gas reservoir (56; Figure 1) fluidly coupled to the valve (78/77; Figure 2) by the thermal conditioning channel (see above), as claimed in claim 31

Conger does not teach a mixer coupled to the second surface of the lid, the mixer having a central passage in communication with the flow channels. Conger does not teach a gas manifold including a conduit disposed therein adapted to flow a heat transfer fluid therethrough. Conger does not teach that the lower surface (inner radius lowest surface of 16) of his gas manifold comprises a plurality of bosses that contact the lid. Conger does not teach a baffle plate.

Hao teaches a semiconductor processing system (column 3, lines 51-67). Further, Hao teaches a mixer (baffle plate assembly 40; Figure 3) coupled to a gas distribution lid (35), the mixer having a central passage (receiving ampoule for 29; Figure 3). Hao further teaches:

i. a lower surface (bottom of 22) of a gas manifold (22) interfaces a plurality of bosses (outer-most 36's; Figures 3, 4, 6, and 7) that contact a lid (35; Figure 3), where the bosses (upper-most and outer-most 36; Figures 3, 4, 6, and 7) are fabricated with holes disposed therethrough (Figures 3, 4, 6, and 7)

ii. a first side (top surface of upper-most 40) of his baffle plate further comprising a ring (inner-most and upper-most 36; Figure 3) circumscribing the recess (baffles formed by plate 40) that maintains the first side (top surface of upper-most 40) of the baffle plate (upper-most 40; Figure 3) in a spaced-apart relation with a second surface (bottom of 22) of his gas manifold (22)

iii. the first side (lower side of 22) of the baffle plate (22) further comprises a ring (inner-most and upper-most 36; Figure 3) circumscribing the recess (baffle formed by upper plate 40) and a plurality of bosses (lower 36's; Figures 3, 4, 6, and 7) disposed radially outward of the ring (inner-most and upper-most 36; Figure 3), the ring (inner-most and upper-most 36; Figure 3) and bosses (outer-most 36's; Figures 3, 4, 6, and 7) maintaining the first side (top surface of upper-most 40) of the baffle plate (upper 40) in a spaced-apart relation with the second surface (bottom of 22) of the lid, as claimed in claim 15

iv. the lid assembly (35; Figure 3) of claim 15, wherein the ring (inner-most and upper-most 36; Figure 3) and boss (outer-most 36; Figures 3, 4, 6, and 7) extend from the first side (top

surface of upper-most 40) of the baffle plate (upper-most 40) to a common elevation, as claimed in claim 16

v. the lid assembly (35; Figure 3) of claim 8, wherein the second surface (lower surface (inner radius lowest surface of 16)) of the lid (35) further comprises a plurality of recess (baffles formed by plates 40) formed therein that reduce the contact area with the first side (top surface of upper-most 40) of the baffle plate (upper 40), as claimed by claim 17

vi. the lid assembly (35; Figure 3) and gas manifold (22) of claim 8, wherein the lid and gas manifold further comprise a thermal control channel (column 3, lines 45-50) adapted to flow a heat transfer fluid therethrough, as claimed by claims 18, 19, 27, and 28

vii. a lid assembly (35; Figure 3) wherein the lower surface (lower surface of 22) further comprises: a mounting surface (outer flange portion) projecting outwards from the lower surface (lower surface of 22) and maintaining the lower surface (lower surface of 22) of the gas manifold (22) and second surface (20) of the lid (35) in a spaced-apart relation, as claimed in claim 26

viii. the lid assembly (35) of claim 25 further comprising: a baffle plate having a first side (top surface of upper-most 40) and a second side (bottom surface of upper-most 40), the first side coupled to the second surface (bottom surface of 22) of the lid (35) and having a recess (baffles formed by plate 40) formed therein, the recess (baffles formed by plate 40) defining a plenum with the second surface (bottom surface of 22) of the lid (35), the baffle plate having a passage (not shown; inherent, consider flow with the apparatus of Figures 3 and 4) disposed therethrough providing a passageway between the plenum and the second side of the baffle plate, as claimed in claim 32

ix. the lid assembly (35) of claim 32, wherein the second surface (lower surface of 22) of the lid further comprises a plurality of recesses (baffles formed by plate 40) formed therein that reduce the contact area with the first side (top surface of upper-most 40) of the baffle plate, as claimed by claim 33

x. the lid assembly (35) of claim 32, wherein the first side (top surface of upper-most 40) of the baffle plate further comprises a plurality of bosses (36's; Figures 3, 4, 6, and 7) that maintain the first side (top surface of upper-most 40) of the baffle plate (upper 40) in a spaced-apart relation with the second surface (lower surface of 22) of the lid (35), as claimed in claim 37

xi. the lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) of claim 37, wherein at least one of the bosses (outer-most 36's; Figures 3, 4, 6, and 7) has a mounting hole disposed therethrough (Figures 4, 4a), as claimed in claim 38

xii. the lid assembly (35; Figure 3) of claim 32, wherein the first side (top surface of upper-most 40) of the baffle plate (upper 40) further comprises a ring (inner-most and upper-most 36; Figure 3) circumscribing the recess (baffles formed by plates 40) that maintains the first side (top surface of upper-most 40) of the baffle plate (upper 40) in a spaced-apart relation with the second surface (bottom of 22) of the lid (35), as claimed in claim 39.

xiii. the lid assembly (35) of claim 32, wherein the first side (top surface of upper-most 40) of the baffle plate (upper 40) further comprises a ring (inner-most and upper-most 36; Figure 3) circumscribing the recess (baffles formed by plates 40) and a plurality of bosses (outer-most 36's; Figures 3, 4, 6, and 7) disposed radially outward of the ring (inner-most and upper-most 36; Figure 3), the ring (inner-most and upper-most 36; Figure 3) and bosses (outer-

most 36's; Figures 3, 4, 6, and 7) maintaining the first side (top surface of upper-most 40) of the baffle plate (upper 40) in a spaced-apart relation with the second surface (bottom of 22) of the lid (35), as claimed in claim 40

xiv. the lid assembly (35) of claim 40, wherein the ring (inner-most and upper-most 36; Figure 3) and bosses (outer-most 36's; Figures 3, 4, 6, and 7) extend from the first side (top surface of upper-most 40) of the baffle plate (upper 40) to a common elevation (Figure 3), as claimed in claim 41

xv. a baffle plate (upper-most 40; Figure 3) having a first side (top) and a second side (bottom), the first side coupled to the second surface (lower surface of 22) of the lid (35) and having a recess (baffles formed by plates 40) formed therein, the recess (baffles formed by plates 40) defining a plenum with the second surface (lower surface of 22) of the lid (35) the baffle plate (40) having at least on passage (not shown) disposed therethrough providing a passageway between the plenum and the second side of the baffle plate, as claimed in claim 46.

xvi. the baffle plate of claim 46, "wherein the wherein the" first side (top surface of upper-most 40) of the baffle plate (upper 40) further comprises a plurality of bosses (outer-most 36's; Figures 3, 4, 6, and 7) extending therefrom that maintain the baffle plate and the lid in a spaced-apart relation, as claimed in claim 47

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Hao's baffle plate and lid assembly (35, Figure 3) to the exit (82) of Conger's lid assembly.

Motivation to add Hao's baffle plate and lid assembly to the exit of Conger's lid assembly is to provide uniform processing gas distribution and control heat in the gas distribution passages as taught by Hao (column 4, lines 48-50; column 5, lines 19-36).

24. Claims 48-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conger et al (USPat. 4,761,269) in view of Resch et al (USPat. 5,232,164). Conger is discussed above. Conger additionally teaches:

i. a lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) for a semiconductor processing system (column 1, lines 10-15) having an internal volume, said lid assembly (16; Figure 2; column 5, line 54 - column 6, line 26; Compare applicant's lid 20; Figure 2) comprising: a lid having first (circumferential surface 16) and second (circumferential surface of 82) opposed surface; a plenum (88, 80, 82) defined between the first and the second surfaces; a plurality of inlet channels (72, 74) disposed through the first surface and coupled to the plenum; a center passage (82) disposed through the second surface and coupled to the plenum providing a singular passageway between the plenum and the second surface of the lid (35)

Conger does not teach:

ii. a mixing lip extending into the center passage, the mixing lip having an inner tip disposed radially inwards of the inlet passages, as claimed by claim 48

iii. the lid assembly of claim 48, wherein the tip of a mixing lip is rounded, as claimed in claim 49

iv. the lid assembly of claim 48, wherein the mixing lip further comprises a sculpted surface, as claimed in claim 50

Resch teaches a gas nozzle (84 on 86, "P"; Figure 3) including mixing lip (100 on 86; Figure 3, "first member", Claim 1) extending into the center passage (84) where the mixing lip has an inner tip disposed radially inwards of the inlet passage. Resch further teaches a rounded lip (71, Figure 5a).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Resch's mixing lip to Conger's center passage.

Motivation to add Resch's mixing lip to Conger's center passage is to provide mixing of the propellant gas as taught by Resch (independent claim 1).

25. Claims 9-11, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conger et al (USPat. 4,761,269) and Hao et al (USPat. 6,123,775) in view of Resch et al (USPat. 5,232,164). Conger and Hao are discussed above. Conger and Hao do not teach:

v. the lid assembly of claims 9 or 32, wherein the baffle plate further comprises a mixing lip defined by a bottom of the recess and the center passage, the mixing lip having an inner tip disposed radially inwards of the inlet passages, as claimed by claims 9 and 34

vi. the lid assembly of claims 9 or 34, wherein the tip is rounded, as claimed by claims 10 and 35

vii. the lid assembly of claims 9 or 34, wherein the mixing lip further comprises a sculpted surface as claimed by claims 11 and 36

Resch teaches, as discussed above, a gas nozzle (84 on 86, "P"; Figure 3) including mixing lip (100 on 86; Figure 3, "first member", Claim 1) extending into the center passage (84) where the mixing lip has an inner tip disposed radially inwards of the inlet passage. Resch further teaches a sculpted rounded lip (71, Figure 5a).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Resch's mixing lip to Conger and Hao's center passage.

Motivation to add Resch's mixing lip to Conger and Hao's center passage is to provide mixing of the propellant gas as taught by Resch (independent claim 1).

Conclusion

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPat. 5,500,256; 5,976,261; 4,993,358; 3,592,575.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.